WHAT IS CLAIMED IS:

1   1.   A method for a mobile station to detect and estimate
2   radiation power received thereby, comprising the following
3   steps:
4   obtaining a current mobile station location;
5   generating a base station combination and corresponding
6   base station information, wherein the base station
7   combination and the corresponding base station
8   information are retrieved by searching in a first
9   database while using location information of a
10   serving base station as a search index, the base
11   station combination comprising the serving base
12   station and nearby base stations close to the serving
13   base station;
14   calculating a distance between the mobile station and each
15   base station listed in the base station combination
16   according to the current mobile station location and
17   the base station information in the base station
18   combination;
19   estimating total radiation power by substituting
20   calculated distances into a predetermined equation;
21   checking whether the total radiation power is greater than
22   a preset minimal safety value; and
23   informing the mobile user if the total radiation power is
24   greater than the preset value.

1   2.   The radiation detection and estimation method
2   according to claim 1, wherein the base station combination and
3   the corresponding base station information are retrieved from

4   the first database built in the serving base station and sent
5   to the mobile station.

1   3.   The   radiation   detection   and   estimation   method
2   according to claim 2, wherein the first database of the serving
3   base   station   is   accessed   through   a   wireless   packet   data
4   protocol.

1   4.   The ·radiation   detection   and   estimation   method
2   according to claim 1, wherein the step of generating a base
3   station combination and corresponding base station information
4   comprises the following steps:
5   acquiring the location information from the serving base
6   station; and
7   obtaining the base station combination from the first
8   database while using the location information of the
9   serving base station as the search index, wherein the
10   first database is downloaded into a secondary memory
11   device.

1   5.   The   radiation   detection   and   estimation   method
2   according to claim 1, further comprising preparing the first
3   database offline before the first database is activated.

1   6.   The   radiation   detection   and   estimation   method
2   according to claim 1, wherein the location information is part
3   of broadcasted cell information for location registration,
4   which is acquired by the mobile station through broadcasting
5   system messages.

1   7.   The   radiation   detection   and   estimation   method
2   according to claim 1, wherein the location information comprises

3 a Mobile Country Code (MCC), a Mobile Network Code (MNC), and

4 a Location Area Code (LAC) of the serving base station.

1   8.   The radiation detection and estimation method

2 according to claim 1, wherein the first database stores a set

3 of base station information for each base station, and the base

4 station information for a corresponding base station comprises

5 a Mobile Country Code (MCC), a Mobile Network Code (MNC), a

6 Location Area Code (LAC), a base station identification number,

7 power level, longitude, latitude, and altitude of the

8 corresponding base station.

1   9.   The radiation detection and estimation method

2 according to claim 1, wherein the current mobile station

3 location is derived using a location service feature embedded

4 in the mobile station.

1   10. The radiation detection and estimation method

2 according to claim 9, wherein the location service feature is

3 provided by Assisted Global Positioning System (AGPS).

1   11. The radiation detection and estimation method

2 according to claim 1, wherein the predetermined equation is

3 derived by summing received radiation power emitted from each

4 base station in the base station combination, and the radiation

5 power emitted from a base station is inversely proportional to

6 the square of the distance between the base station and the

7 mobile station.

1   12. The radiation detection and estimation method

2 according to claim 1, further comprising:

3   deriving a new mobile station location for updating the
4   current location when the change in location does not
5   trigger the change of base station combination; and
6   updating the total radiation power according to the new
7   mobile station location.

1   13. The radiation detection and estimation method
2   according to claim 7, further comprising:
3   deriving adjacent LACs using the LAC of the location
4   information when the mobile station is located in an
5   area covered by several LACs; and
6   updating the location information to include the LAC and
7   all the adjacent LACs, to update the base station
8   combination.

1   14. The radiation detection and estimation method
2   according to claim 13, wherein the adjacent LACs are derived by
3   searching a second database.

1   15. The radiation detection and estimation method
2   according to claim 1, further comprising:
3   comparing each of the calculated distances between the
4   mobile station and the base station in the base
5   station combination with a predetermined distance;
6   and
7   excluding a far base station from the base station
8   combination if the calculated distance of the far
9   base station is greater than the predetermined
10   distance, thereby simplifying the radiation power
11   estimation calculation.

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1   16. The radiation detection and estimation method
2   according to claim 1, further comprising:
3   obtaining a list of monitored base stations including the
4   serving base station;
5   measuring and calculating radiation power of the monitored
6   base stations using a protocol stack inside the
7   mobile station;
8   excluding the monitored base stations from the base station
9   combination obtained by searching the first
10   database; and
11   combining measured radiation power with estimated
12   radiation power obtained from the predetermined
13   equation as the total radiation power.

1   17. The radiation detection and estimation method
2   according to claim 1, further comprising:
3   counting a consecutive number of times the total radiation
4   power is greater than the preset value; and
5   informing the mobile user only if the number of times is
6   greater or equal to a tolerance index.

1   18. The radiation detection and estimation method
2   according to claim 17, wherein the tolerance index is set by the
3   mobile user.